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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/781,250	02/13/2001	Takashi Fuchisawa	Q62939	8086

7590 08/25/2004  
SUGHRUE, MION, ZINN, MACPEAK & SEAS  
2100 Pennsylvania Avenue, N.W.  
Washington, DC 20037

EXAMINER

MOORE, IAN N

ART UNIT	PAPER NUMBER
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2661

DATE MAILED: 08/25/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 09/781,250	<b>Applicant(s)</b> FUCHISAWA, TAKASHI	
	<b>Examiner</b> Ian N Moore	<b>Art Unit</b> 2661	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>2/13/01, 1/16/02, 9/30/02</u> | 6) <input type="checkbox"/> Other: ____.  |

## DETAILED ACTION

### *Specification*

1. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: TDMA/TDD Mobile Phone System and Handover method by setting a slot to receivable state.

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1 and 7 are rejected under 35 U.S.C. 102(e) as being anticipated by Tuutijarvi (U.S. 5,870,675).

**Regarding claims 1 and 7,** Tuutijarvi'675 discloses a mobile phone system (see FIG. 1, cellular system) comprising:

plural base stations (see FIG. 1, four BS, base station for each cell C) each transmitting a logical control channel signal (see FIG. 4b, slow associated control channel SACCH) through a transmission slot (see FIG. 4b, a TDMA time slot sent to mobile phone by each base station) to which the same slot number in a frame is allocated (note that the control channel (i.e. SACCH) is allocated in the same specific/predefined location (i.e. number 12) in the TDMA time slot (i.e. FIG. 4b) within a TDMA frame so

**that the mobile station will exactly know where the control channels are; see col. 2, lines 32-40, 46,67 to col. 3, lines 10), and**

a mobile phone (see FIG. 1, MS, Mobile station) receiving the transmitted logical control channel signal through a reception slot (see FIG. 4b, a time slot received sent by each base station is received at the MS) to which the slot number corresponding to the transmission slot is allocated (see FIG. 4b, note that the control channel of transmission slot from base station is received at the corresponding reception slot of the mobile station side. Since the transmitted control channel (i.e. SACCH) which is allocated in the same specific location (i.e. number 12) in the transmit TDMA time slot (i.e. FIG. 4b) at the base station, the mobile station allocates the same TDMA channel with specific/predefined location of control channel so that mobile station knows exactly where the control channels information are. Moreover, in TDMA system, the received time slot number corresponds to the transmit time slot in order to synchronize between TDMA BS and MS, otherwise, the important control channels information, sent by BS, will be missed by MS), setting the reception slot into a receivable state (note that in order to receives SYNC and SACCH from the BS, mobile station must set the slot to be able to receive), whereby said mobile phone receives the logical control channel signal by the reception slot which are set into the receivable state when handover is carried out (see col. 4, lines 1-42; note that when base station finds out the connection quality is dropped, it informs the mobile unit about the fact and handover via the control channel. Thus, in order to receive handover information, the MS must set the slot to receiving mode/state in order to receive handover information from the BS during handover).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tuutijarvi'675 in view of Strat'926 (AU 735582).

**Regarding claim 2**, Tuutijarvi'675 discloses receiving the logical control channel signal through the reception slot which is set to the receivable state as described above in claim 1. Tuutijarvi'675 further discusses communications between said mobile phone and one base station of said plural base stations serving as a handover source (see col. 4, lines 19-24, 34-59; note that when the base station determines the connection quality is below threshold, it informs the mobile station regarding the fact and hands the over to another base station. Thus, the BS that sends a control message to MS regarding the handover is the handover source base station).

Tuutijarvi'675 does not explicitly discloses said mobile phone sets into a receivable state an other reception slot which is not used for communications between said mobile phone and one base station (see col. x, line ).

However, the above-mentioned claimed limitations are taught by Strat'582. In particular, Strat'582 teaches when receiving the logical control channel signal through the reception slot (see **FIG. 3, a first set of channels in slot IT0, i.e., a combined control**

**channels of PCH (F) and SCH (S)) which is set to the receivable state (see FIG. 3, first receiving physical channel slot; see col. 9, lines 10-12, see col. 5, line 20-22, 29-30; note that the first set of channels in IT0 is used for handover implementation between first BCCH carrier (i.e. source BS) and MS), said mobile phone (see col. 7, line 5-9; mobile station) sets into a receivable state an other reception slot (see FIG. 4, a second set of channels in slot IT0, i.e., a BCCH (B) channel) which is not used for communications between said mobile phone and one base station serving as a handover source (see col. 9, lines 13-16, see col. 5, line 23-25, 30-33; note that the second set of channels in slot IT0 is not used for handover implementation between first BCCH carrier (i.e. source BS) and MS.**

In view of this, having the system of Tuutijarvi'675 and then given the teaching of Strat'582, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Tuutijarvi'675, for the purpose of providing mechanism of setting a slot which is not used for handover communication between MS and BCCH carrier BS, as taught by Strat'582, since Strat'582 states the advantages/benefits at col. 3, lines 1-22, see col. 7, line 10-15 that it would provide reduce handover duration. The motivation being that by providing a mobile station to perform handover by utilizing only first set of channels associated with the base station, it can increase the speed of the handover.

4. Claims 3-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tuutijarvi'675 in view of Yahata (US 6,480,483).

**Regarding claim 3, 4 and 5**, Tuutijarvi'675 discloses wherein the logical control channel signal is successively transmitted from each of said plural base stations as described above in claim 1. Tuutijarvi'675 discloses each base station in the network transmit SACCH.

Tuutijarvi'675 does not explicitly discloses transmitted at a fixed period timing (see **Yahata'483 FIG. 8, TDMA frame timing**) from each of said plural base stations (see **Yahata'483 FIG. 4, Master Station CS1, CS2... and slave base station CS100, CS200; see col. 15, lines 6-30; note that master base station CS1 utilizes the GPS to time each slave base station so that the signal the transmitted by each base station is synchronized**);

wherein each of said plural base stations is synchronized in transmission timing among said plural base stations (see **Yahata'483 FIG. 7, steps a-p; note that master base station C1 is synchronized with GPS reference timing, and the master station C1 sends a control signal to slave base stations CS103, 104,107 for synchronization. The slave base stations synchronize with the master base station; see Yahata'483 col. 14, lines 25 to col. 17, lines 54**).

However, the above-mentioned claimed limitations are taught by Yahata'483. Note that Tuutijarvi'675 teaches each base station transmitting control channels to the mobile station. Yahata'483 teaches that each base station is synchronized by means of GPS. Thus, Tuutijarvi'675's base stations can be synchronized with a single reference clock such as GPS. Thus, it is clear that each synchronized base station transmit the control channel signal at fixed period time since each base station is synchronized in transmission in timing.

In view of this, having the system of Tuutijarvi'675 and then given the teaching of Yahata'483, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Tuutijarvi'675, for the purpose of providing mechanism of synchronizing between base stations, as taught by Yahata'483, since Yahata'483 states the advantages/benefits at col. 5, lines 49-65 that it would provide synchronization between base station. The motivation being that by providing the synchronization between base stations, it can reduce the synchronization failures (i.e. improper handover) due to clock drift between base stations, which result in clock drift between base station and mobile station.

5. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tuutijarvi'675 and Strat'582, as applied to claim 1 and 2 above, and further in view of Hammer (U.S. 4,872,204).

**Regarding claim 6**, Tuutijarvi'675 discloses wherein said mobile phone detects a reception level of each of logical control channel signals thus received (see col. 4, line 5-9; the mobile unit measures the received RSSI up to 24 different channels), and said one base station serving as said handover source compares the reception level of the logical control channel signal thus detected with the reception level of an information channel signal which is transmitted/received to/from (see col. 4, lines 9-24; up receiving the signal measurement from MS, source/currently communicating BS compares the measured signal level of the control channel with the threshold for information channel signal).

Neither Tuutijarvi'675 nor Strat'582 explicitly disclose wherein said mobile phone compares the reception level of the signal with the reception level of the signal, which is transmitted/received to/from said one base station.

However, the above-mentioned claimed limitations are taught by Hammer'204. In particular, Hammer'204 teaches wherein said mobile phone (see **FIG. 2, Mobile Station 13**) detects a reception level (see **FIG. 2, Signal Strength I of curve G**) of each of logical control channel signals thus received (see **col. 6, lines 44-55; mobile station 13 searches the alternative base station to be assigned as the signal strength I of curve G of reception of the control information transmission channel**), and compares the reception level of the logical control channel signal thus detected (see **FIG. 2, Signal Strength I of curve G**) with the reception level of an information channel signal (see **FIG. 2, Signal Strength I of curve F**) which is transmitted/received to/from said one base station serving as said handover source (see **FIG. 2, see col. 7, line 25-47; note that mobile station compares the signal strength I of curve G of the alternative base station 11 with the signal strength curve F of currently communicating base station 10**).

In view of this, having the combined system of Tuutijarvi'675 and Strat'582, then given the teaching of Hammer'204, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the combined system of Tuutijarvi'675 and Strat'582, for the purpose of providing the mobile station comparing the signal strength, as taught by Hammer'204, since Hammer'204 states the advantages/benefits at col. 2, lines 1-10 that it would improve the quality of transmission and reception of the individual remote mobile station. The motivation being that by scanning the signal strength

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of the alternative base station and comparing to currently communicating base station at the mobile unit, it can increase the transmission signal quality of the mobile unit since the mobile unit is signal strength is maintained.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ian N Moore whose telephone number is 703-605-1531. The examiner can normally be reached on M-F: 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ken Vanderpuye can be reached on 703-308-7828. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

INM  
8/20/04



KENNETH VANDERPUYE  
PRIMARY EXAMINER